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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,931	10/21/2003	Toshiyuki Kitahara	Q78103	3183

7590 05/03/2005

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EXAMINER

WONG, KIN C

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/688,931	KITAHARA, TOSHIYUKI	
	Examiner	Art Unit	
	K. Wong	2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/14/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims (1, 2, 8, 9, 15 and 16) are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al (5452165).

Regarding claim 1: Chen et al discloses a magnetic tape drive (as depicted in figure 15 of Chen et al) including a head unit (as depicted in figure 14 of Chen et al), the head unit has a plurality of recording heads (element 40 in figure 14) which record data on a magnetic tape (element 80 in figure 14), and a servo head which performs a readout of a servo signal recorded on the magnetic tape in order to perform a tracking control of the head unit (in col. 7, lines 18-25 where Chen et al describes the servo head in a head array), wherein recording heads are lined up along the width directions with respect to the magnetic tape (as depicted in figure 14), the distance between adjacent recording heads is the same as the distance between adjacent data tracks to be formed on the magnetic tape by respective recording heads (as depicted in figure 6), azimuth angles of adjacent recording heads differ with each other (as depicted in figures 10 and 11), and a plurality of data tracks are simultaneously formed on the magnetic tape by respective recording heads, when performing the recording of

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data on the magnetic tape (in col. 5, lines 3-8 of Chen et al). Thus, Chen et al discloses a tape drive with a plurality of simultaneous azimuthal read data heads that satisfy the recited limitations of above.

Regarding claim 2: Chen et al teaches that wherein the head unit has a plurality of reproducing heads which performs the readout of data written by recording heads from the magnetic tape, wherein reproducing heads are provided in a one-to-one relationship with corresponding recording heads, and wherein the azimuth angle of each reproducing heads is the same as that of corresponding recording head (in col. 6, lines 14-59 of Chen et al).

Regarding claims 8 and 9: Chen et al illustrates in figure 10 that wherein azimuth angles of adjacent recording heads are established at predetermined different angle whose absolute value is the same value.

Regarding claims 15 and 16: Chen et al illustrates in figure 10 that wherein azimuth angles of recording heads differs with each other.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims (3, 5, 7, 10, 12, 14, 17 and 19) are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (5452165) in view of McNeil et al (6094806).

Regarding claim 3: Chen et al is silent on the shorter (narrow) write gap and longer read width (or read wide gap) of the head or write narrow and read wide. McNeil et al is cited for teaching write narrow and read wide in a head assemble (see abstract and col. 4, lines 13-27 of McNeil et al).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the read elements of Chen et al with a wider read element than the write element as taught by McNeil et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to reduce the read error from a nonlinear signal track as suggested in col. 2, lines 1-25 of McNeil et al.

Regarding claim 5: the limitations of wherein the reproducing head has spare reproducing heads at both sides in the width directions with respect to the magnetic tape, wherein the length and azimuth angle of the spare reproducing head are the same as that of the reproducing head are considered known in the combination of Chen et al and McNeil et al because Chen et al describes the various configuration of combining the head elements. Although, the combination of the three read elements per track is not explicitly recited by Chen et al.

It further would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the reading of Chen et al with three read elements per track. The rationale is as one of ordinary skill in the art would

have been motivated to provide the telemetry of the center of the track or the signal strength or as describes by Chen et al in col. 6, lines 14-59.

Regarding claims 10, 12 and 14: Chen et al illustrates in figure 10 that wherein azimuth angles of adjacent recording heads are established at predetermined different angle whose absolute value is the same value.

Regarding claims 17 and 19: Chen et al illustrates in figure 10 that wherein azimuth angles of recording heads differs with each other.

Claims (4, 6, 11, 13, 18 and 20) are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (5452165).

Regarding claims 4 and 6: Chen et al teaches various configuration of combining the head elements; the combination of the three read elements per track is not explicitly recited.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the reading of Chen et al with three read elements per track. The rationale is as one of ordinary skill in the art would have been motivated to provide the telemetry of the center of the track or the signal strength or as describes by Chen et al in col. 6, lines 14-59.

Regarding claims 11 and 13: Chen et al illustrates in figure 10 that wherein azimuth angles of adjacent recording heads are established at predetermined different angle whose absolute value is the same value.

Regarding claims 18 and 20: Chen et al illustrates in figure 10 that wherein azimuth angles of recording heads differs with each other.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Barndt et al (6222698), Fasen (6169640), Knowles et al (5982711) and Panish et al (6130804) are cited for multiple azimuth head in head assemble for a tape drive.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (571) 272-7566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kw

29 Apr 05

A handwritten signature, likely of the examiner K. Wong, consisting of a stylized 'K' and 'W'.